

REMARKS

This responds to the Office Action dated December 28, 2006. No claims are amended, cancelled, or added. As a result, claims 1-21 remain pending in this patent application.

§103 Rejection of the Claims\

1. Claims 1-13 and 15-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gauglitz (U.S. Patent No. 5,231,990) in view of Wang et al. (U.S. Patent No. 4,838,278). Applicant respectfully traverses this basis of rejection.

The Office Action states:

Further regarding claims 1, 8, 15 and 19, Gauglitz '990 discloses the invention substantially as claimed, but does not expressly disclose that the location assignments of the detected first and second pacing signals be based on discrimination between atrial and ventricular locations of those signals.

(Office Action at 3-4.) Applicant agrees that Gauglitz does not disclose assigning atrial and ventricular location assignments of pacing pulses based on their polarities. Instead, the Office Action attempts to rely on Wang to establish assigning atrial and ventricular location assignments of electrodes based on polarities of pacing signals, by stating:

In the same field of endeavor, Wang '278 teaches determining whether a particular pacing pulse is atrial or ventricular and, based on that determination, storing the information for that signal in two separate memory block locations (column 6, lines 17-26).

(Office Action at 4.) However, the cited portion of Wang merely states:

On the other hand if D10 indicates that the time $d1 - d2$ is less than a given amount, the clusters are too close together for dual chamber pacing. D11 determines whether atrial or ventricular pacing is involved by checking to see if $d1$ is greater than a given time, herein indicated as being 152 msec. If it is, a block 56 stores in the template buffer 12 information, that atrial pacing is involved, but if it is not, a block 58 stores information in the buffer indicating that ventricular pacing is involved.

(Wang col. 6, lines 17-26.) Thus, Wang appears to use time intervals—not pacing pulse polarities, to determine whether atrial or ventricular pacing is involved. Moreover, Wang apparently does not even use pacing pulses at all (much less their polarity), since Wang appears to use a shape of QRS complexes (that is, intrinsic ventricular depolarization shape) for

classifying QRS complexes—not pacing pulses or pacing pulse polarities. Accordingly, Wang fails to cure the deficiency of Gauglitz, that is, Gauglitz's failure to disclose assigning atrial and ventricular location assignments of pacing pulses based on their polarities, as similarly recited or incorporated in the present claims.

Also, in comparing Gauglitz to claims 8 and 19, the Office Action cites particular portions of Gauglitz that the Office Action asserts meet the various elements of claim 8—with the notable exception of the asserted “classifying the pace pulses by location in either an atrium or a ventricle based upon the signal polarities or one of the other electrical or physiologic computations herein described” (see Office Action at 3), for which the Office Action cites no specific support in Gauglitz. As discussed above, Applicant respectfully submits that neither Gauglitz nor Wang appear to disclose, teach, or even suggest assigning atrial and ventricular location assignments of pacing pulses based on their polarities, as similarly recited or incorporated in the present claims. Although Gauglitz arguably may detect pace pulse polarity, as asserted by the Office Action, Applicant can find nothing in Gauglitz indicating that Gauglitz uses the pace pulse polarity for assigning atrial or ventricular location assignments to the pace pulses, as similarly recited or incorporated in the present claims. Moreover, Wang does not cure this deficiency, for the reasons described above, nor does either Wang or Gauglitz provide any motivation for being combined in the manner proposed by the Office Action. Furthermore, Applicant is unsure what the Office Action means by “or one of the other electrical or physiologic computations herein described,” or of its relevance to the present claims, since all of the present claims similarly expressly recite or incorporate language indicating that atrial and ventricular location assignments are made using polarity information about the first and second pace pulses. Therefore, Applicant respectfully requests clarification as to what is meant by “one of the other electrical or physiologic computations herein described,” as well as clarification as to where such information is found in the cited references, and how such information applies to the specific language recited in the present claims.

Lastly, regarding claim 1, the Office Action appears to be impermissibly ignoring the language in claim 1 reciting that the logic circuit is

configured to assign a first location assignment to the first and a second location assignment to the second pace pulse using at least in part the polarity information about the first and second pace pulses, wherein the first and second location

assignments represent the different locations of the heart at which the first and second pace pulses were respectively delivered, and wherein the first and second location assignments discriminate at least between atrial and ventricular locations using the polarity information about the first and second pace pulses.

(Claim 1.) Instead, the Office Action takes the position that Gauglitz meets the language of claim 1 merely by its asserted disclosure of “a logic circuit coupled to the pace pulse detector circuit (controller 24; column 3, lines 21-25.)” (Office Action at 2.) To the extent that the Office Action is ignoring the cited language from claim 1 as allegedly functional and without patentable weight, Applicant respectfully traverses these grounds for rejection and points out that functional language is specifically authorized by *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971); *In re Caldwell*, 138 USPQ 243 (CCPA 1963); *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 3 USPQ2d 1766 (Fed. Cir. 1987 (“so that” functional clause of claim renders reference non-anticipating); MPEP § 2173.05(g). The MPEP states:

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.

MPEP § 2173.05(g). Examples of acceptable limitations referenced in this MPEP section include “incapable of forming a dye with said oxidizing developing agent” because it sets definite boundaries on the patent protection sought, and “members adapted to be positioned” serves to precisely define present structural attributes of interrelated component parts. Applicant respectfully submits that the cited language from claim 1 (which is apparently being impermissibly ignored by the Office Action) similarly serves to define structural attributes of the logic circuit—attributes that Applicant respectfully submits are simply not met by Gauglitz.

In sum, Applicant respectfully requests withdrawal of this basis of rejection of these claims.

2. Claims 14 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gauglitz (U.S. Patent No. 5,231,990) in view of Wang et al. (U.S. Patent No. 4,838,278) as applied to claims 8 and 19 above, and further in view of Johnson and Swartz (A Simplified Approach to Electrocardiography, 1986, Chapters 3 and 5).

Applicant respectfully submits that no *prima facie* case of obviousness exists because all elements incorporated in claims 14 and 21 are not disclosed, taught, or suggested in the cited portions of Gauglitz, Wang, and/or Johnson and Swartz for the reasons discussed above with respect to the § 102 rejection of their base claims. In particular, Applicant respectfully repeats that Wang apparently fails to cure the deficiency of Gauglitz in that neither of these references appear to disclose, teach, or even suggest using pace pulse polarity for assigning atrial or ventricular location assignments to the pace pulses. Instead, as discussed above, Wang appears to classify QRS complexes (not pace pulses) based on timing relationships (not pace pulse polarity).

Although Johnson and Swartz apparently refer to determining the axis of an intrinsic ECG signal, like Gauglitz and Wang, Johnson and Swartz apparently fails to disclose determining or displaying locations of pace pulses. By contrast, the present patent application describes determining the location of pace pulses, such that the display strip can be conveniently annotated for a physician. This makes such diagnostic information easier to read, and less prone to error in interpretation. Because all elements incorporated in claims 14 and 21 are not disclosed, taught, or suggested in the cited portions of Gauglitz, Wang, and/or Johnson and Swartz, Applicant respectfully submits that no *prima facie* case of obviousness exists with respect to claims 14 and 21. Accordingly, Applicant respectfully requests withdrawal of this rejection of these claims.

Reservation of Rights

In the interest of clarity and brevity, Applicant may not have equally addressed every assertion made in the Office Action, however, this does not constitute any admission or acquiescence. Applicant reserves all rights not exercised in connection with this response, such as the right to challenge or rebut any tacit or explicit characterization of any reference or of any of the present claims, the right to challenge or rebut any asserted factual or legal basis of any of the rejections, the right to swear behind any cited reference such as provided under 37 C.F.R. § 1.131 or otherwise, or the right to assert co-ownership of any cited reference. Applicant does not admit that any of the cited references or any other references of record are relevant to the present claims, or that they constitute prior art. To the extent that any rejection or assertion is based

upon the Examiner's personal knowledge, rather than any objective evidence of record as manifested by a cited prior art reference, Applicant timely objects to such reliance on Official Notice, and reserves all rights to request that the Examiner provide a reference or affidavit in support of such assertion, as required by MPEP § 2144.03. Applicant reserves all rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by MPEP § 821.04.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6951 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.


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By 
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 28 day of March 2007.

Name

Signature